REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-11 are pending in the present application. Claims 1, 6, and 10 are amended and Claims 12-15 are added by the present amendment.

In the outstanding Office Action, Claim 1 was objected to, and Claims 1-11 were rejected under 35 U.S.C. § 103(a) as unpatentable over Wyant et al. (U.S. Patent No. 4,832,489, herein "Wyant").

Claims 6 and 10 are amended to better conform with U.S. claim drafting practice. No new matter is believed to be added.

Regarding the objection to Claim 1, Claim 1 is amended to clearly state that a term "n" is "an integer not less than 1," as recited for example in Claims 7 and 11. No new matter is believed to be added. Accordingly, it is respectfully requested that this objection be withdrawn.

Claims 1-11 were rejected under 35 U.S.C. § 103(a) as unpatentable over Wyant. That rejection is respectfully traversed.

Amended independent Claim 1 is directed to a method for measuring a profile of an object based on an optical path difference including emitting towards the object two flash light beams having wavelengths slightly different from each other with a predetermined interval t_1. Further, the method recites picking up interference light formed by light beams reflected from the object and a light beam reflected from a reference mirror while moving the object in a direction, in which the two flash light beams are directed, in units of an interval t_2 at which each of the two flash lights beams is cyclically emitted. A phase shift amount corresponding to a movement amount of the object at a time is set to a value falling within a

range of $2n\pi \pm \pi/2 \pm \pi/4$, where n is an integer not less than 1. Independent Claims 4 and 8 recite similar features as Claim 1.

In a non-limiting example, Figure 1 shows the object O and two flash light sources 31 and 32. In another non-limiting example, Figure 2 shows the two flash light beams having wavelength $\lambda 1$ and $\lambda 2$ separated by a time interval t1 and the time interval t2 at which the two flash lights are cyclically emitted.

Wyant discloses in Figure 1 a device having a pair of lasers 2 and 3 emitting light with distinct wavelengths. The outstanding Office Action states at page 2, last paragraph, that "lasers are functionally similar" to flash light beams filtered "through bandpass filters so that only a single wavelength of each lamp passes through the system." However, light emitted from a laser, i.e., a laser beam, is coherent and light components that are obtained by extracting optional wavelength components from light emitted from the flash lamps have a lower coherence than the laser beam. Thus, the claimed optical-path differences are substantially equalized because of the low coherence of the flash lights. Applicant notes that the laser beam is coherent and its components have a uniform wave front and are high in parallelism. If an optional component of the light emitted from the flash lamp is applied to the system of Wyant that optional component cannot be made coherent. Therefore, the claimed flash light is not in fact "functionally similar" to the laser beam of Wyant, and the claimed flash light could not be substituted for by the laser of Wyant.

Further, the device in Wyant measures a phase of a light wave and shifts the phase by substantially $\pi/2$ which is a general phase shift amount. This is because the phase shift method is a method of measuring the phase of the wave front, and thus limits the phase shift amount to substantially $\pi/2$. In addition, Wyant does not teach or suggest an accurate phase shift amount. To the contrary, if the claimed profile measuring method adopts the above

general phase shift amount of Wyant, a sufficient measurement speed cannot be achieved. The claimed method thus increases the phase shift amount to $2n\pi \pm \pi/2$ as recited in Claim 1, which is several times or several tens of times greater than the general shift amount of Wyant, thereby increasing the measurement speed.

Furthermore, the Wyant reference differs from the claimed method in a procedure of capturing images. The device of Wyant has a wavelength set at $\lambda 1$, and in this state, four images are captured while shifting a phase. Then, the wavelength is set at $\lambda 2$ and the optical-path difference is returned as close as possible to the original value and another four images are captured while shifting the phase. The device Wyant then takes the shape of the object from the above eight images. The method adopted in Wyant uses a laser beam and detects the shape of the object by capturing a number of groups of interference images at two different wavelengths $\lambda 1$ and $\lambda 2$, even if the wavelengths are slightly different in an optical-path difference.

To the contrary, the claimed method captures a number of images while shifting the phase with the phase set at $\lambda 1$, and then detects the shape of the object after capturing further images with the phase set at $\lambda 2$. Thus, the claimed profile measuring method advantageously captures a number of interference images based on two wavelengths with substantially equal optical-path differences. While capturing images, the present method captures a large number of images a necessary number of times (measurement range) while switching the wavelength to $\lambda 1$, $\lambda 2$, $\lambda 1$, $\lambda 2$ and so on.

Accordingly, it is respectfully submitted that independent Claims 1, 4, and 8 and each of the claims depending therefrom patentably distinguish over Wyant.

New Claims 12-15 are added to set forth the invention in a varying scope and Applicant submits the new claims are supported by the originally filed specification. In

particular, Claims 12 and 13 are similar to Claim 6 and Claims 14 and 15 are similar to Claim 10. It is respectfully submitted new Claims 12-15 are allowable for similar reasons as discussed above.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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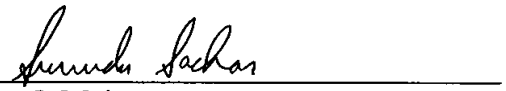

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